

Request for Special Temporary Authority

Pursuant to Section 25.120 of the Rules and Regulations of the Federal Communications Commission (the “Rules”), 47 C.F.R. § 25.120, Harris CapRock Communications, Inc. (“Harris CapRock”) respectfully requests special temporary authority (“STA”) to operate certain earth station onboard vessel (“ESV”) terminals – Harris CapRock’s new SpaceTrack Model ST5000-2.4 and the Intellian Model v240M – in the C- and Ku-band for sea trial testing and demonstrations onboard two foreign-registered cruise ships, the Carnival Sunshine and the Carnival Victory, currently based in Port Canaveral, Florida and Miami, Florida, respectively. Harris CapRock respectfully requests an STA to commence operations on August 1, 2015 to test terminal transmissions in the 5.925-6.425 GHz band and the 14.0-14.5 GHz band. The requested authority enhances current experimental STAs granted to Harris CapRock to test the ST5000-2.4 at specific inland locations¹ by enabling its testing in real-world maritime conditions in comparison to the v240M terminal.

Discussion. Harris CapRock seeks an STA for a period of up to 180 days, commencing on Saturday, August 1, 2015, or the earliest practicable time thereafter, to test terminal uplink transmissions in the conventional C-band (*i.e.*, 5.925-6.425 GHz) and Ku-band (*i.e.*, 14.0-14.5 GHz band). The terminals will receive in conventional C-band and Ku-band downlink spectrum (*i.e.*, 3.700-4.200 GHz and 11.7-12.2 GHz, respectively). Harris CapRock is developing and testing new ESV terminals to communicate with geostationary satellite orbit (“GSO”) and non-geostationary satellite orbit (“NGSO”) fixed-satellite service (“FSS”) satellites in the maritime context. The requested STA is for communication with certain C-band and Ku-band GSO FSS satellite only.

Harris CapRock was recently granted consolidated authority to test the ST5000-2.4 terminal in the C-, Ku- and Ka-band at specific fixed inland locations.² Furthermore, the Commission has previously authorized the v240M terminal for commercial maritime

¹ See File No. 0734-EX-ST-2015; *see also* File No. 0454-EX-ST-2015.

² See File No. 0734-EX-ST-2015.

use³ and Harris CapRock certifies that it will operate the terminal on an intermittent basis within the parameters of that approval. Grant of the requested authority will allow Harris CapRock to further develop and demonstrate the commercial viability of its ST5000-2.4 by comparing it to the v240M model in real-world maritime conditions. Exhibit A contains relevant information relating to the earth station technical parameters, antenna performance, link budgets, radiation hazard and general antenna specifications for the ST5000-2.4. Exhibit B contains the above-mentioned relevant antenna information for the v240M. The technical information required in the FCC's Form 312 is included as part of the Exhibit A and Exhibit B appendices.

Grant of the requested authority will serve the public interest by allowing Harris CapRock to continue development of this new line of antennas that would greatly benefit government and commercial maritime customers. Moreover, Harris CapRock certifies that the proposed experimental operations will be conducted on an unprotected non-interference basis and will comply with Sections 25.221 and 25.222 of the Commission's Rules. Finally, the International Bureau has previously granted authority for operations of ESVs on foreign-flagged vessels for commercial purposes,⁴ and Harris CapRock's proposed testing operations will be much more limited in scope and duration.

Sea Trials. Harris CapRock seeks to test the new ESV terminals in the C- and Ku-band on two different cruise ships. The ST5000-2.4 will be tested on the Carnival Sunshine, which will be ported in Port Canaveral, Florida. During testing, the Sunshine will serve routes in the Caribbean around Puerto Rico and the U.S. Virgin Islands, but will only sail to and dock in foreign territories. (*See Exhibit C for Carnival Sunshine Port List*).

The ST5000-2.4 terminals will be added to the vessels satellite communications suite for purposes of test performance in C- and Ku-band frequencies in real-world conditions. Harris CapRock will test the terminals in Ku-band with the U.S.-licensed Telstar 11N satellite and in the C-band with the U.S.-licensed IS-701 and IS-23 satellites. The ST-5000 2.4m terminal has been previously authorized to communicate with the first

³ *See* File No. SES-MOD-20131108-00955 (Call Sign: KA313).

⁴ *See* File No. SES-MS-20150206-00066; *see* File No. SES-MS-20140318-00150.

two satellites,⁵ and will communicate with IS-23 in accordance with the authorized parameters of this FCC-licensed satellite.

The v240M terminal will be tested in the C-band and Ku-band on the Carnival Victory, which will be ported in Miami, Florida. During testing, the Victory will serve routes in the Caribbean but will only sail to and dock in foreign territories. (*See* Exhibit D for Carnival Victory Port List). The v240M terminals will be added to the vessel's satellite communications suite for purposes of test performance in C-band and Ku-band frequencies in real-world conditions. Harris CapRock will test the terminals in the C- and Ku-band with the U.S.-licensed IS-701 satellite.⁶ Harris CapRock certifies that the v240M terminal will communicate with IS-701 in accordance with the authorized parameters of that FCC-licensed satellite.

Harris CapRock has completed coordination of C-band frequencies at Port Canaveral, Florida (*see* Exhibit A, Annex 4) and Miami, Florida (*see* Exhibit B, Annex 4) and is in the process of coordinating relevant routes and frequencies that could potentially affect U.S.-licensed fixed service operations. Harris CapRock will ensure that its proposed operations will avoid interference to other co-frequency systems and services, and will otherwise comply with Commission policies embodied in its C-band and Ku-band ESV rules.⁷

Harris CapRock's coordination efforts will ensure that no interference will be caused by intermittent C-band test operations and the absence of co-frequency operations in relevant Ku-band frequencies will prevent interference from experimental operations of the ST5000-2.4 and v240M terminals in those bands. While Harris CapRock's commercial C-band and Ku-band ESV licenses impose operational restrictions to protect other co-frequency operations, it cannot yet add the ST5000-2.4 to these licenses because the terminal is still in development. However, as further discussed below, Harris

⁵ *See* File No. 0734-EX-ST-2015.

⁶ Harris CapRock was recently granted authority to communicate with the IS-701 satellite from certain South Florida locations for testing and demonstration purposes. (*See* File No. 0734-EX-ST-2015).

⁷ *See, e.g.*, 47 C.F.R. §25.221-222.

CapRock plans to file a request for regular authority for the service.

In both bands, Harris CapRock agrees to accept all interference from other authorized spectrum users and will immediately suspend operations in the event of interference to other systems and services. In addition, Harris CapRock acknowledges and accepts the conditions of operation set forth in its prior C-band ESV experimental authority⁸ and similar Ku-band ESV authority.⁹

Expedited Consideration under Section 25.120. Harris CapRock respectfully requests expedited processing of this STA request under Section 25.120. Section 25.120(a) provides that STA requests should be filed at least three working days prior to the date of commencement of the proposed operations. Here, Harris CapRock is proposing to commence testing operations on Saturday, August 1st.

Due to an administrative error, Harris CapRock received only yesterday notice of dismissal without prejudice of its experimental STA request and request from the International Bureau to file an STA request through IBFS.¹⁰ Harris CapRock immediately consulted with FCC staff regarding filing an STA with the International Bureau, per the Bureau's request. Given the unique circumstances of the present situation, expedited processing of this STA request is warranted and will allow Harris CapRock to continue to test and develop its ST5000-2.4 terminal for commercial use.

Section 25.120(b)(2) provides that the Commission may grant a temporary authorization for a period not to exceed 180 days if it has placed the STA on public notice. However, because Harris CapRock plans to file a request for regular authority for the service in connection with the proposed operations, the Commission may grant a 60-day authorization pursuant to Section 25.120(b)(3). If the authority granted by the Commission is time limited, Harris CapRock will file for an additional STA authority if necessary to afford sufficient time for testing.

Harris CapRock has expended considerable effort in preparing equipment and personnel for testing on the subject cruise ships to ensure the commencement of

⁸ See File No. 0363-EX-ST-2011.

⁹ See File No. SES-MFS-20120801-00710 (Call Sign E100015).

¹⁰ See File No. 0771-EX-ST-2015 (dismissal issued on July 21, 2015).

operations on August 1st. Grant of the requested authority will serve the public interest by allowing continued development of a new line of ESV terminals that could greatly benefit government and commercial customers and accelerate the expansion of maritime satellite communications services. In addition, authorizing near-term development of this terminal will ensure that Harris CapRock (a U.S. equipment manufacturer and service provider) and other U.S. interests can participate more fully in the development of these important new services.

Accordingly, Harris CapRock respectfully submits that the public interest will be served by grant of the requested STA commencing August 1st. However, if the Commission concludes that it is not possible to grant the STA in the requested time frame, Harris CapRock urges the Commission to grant the STA at the earliest practicable time. Furthermore, if the Commission determines that an authorization for a period of 60 days is more appropriate to facilitate expedited processing of this request, Harris CapRock will accept such authority and seek additional testing authority as necessary.

Point of Contact and Other Information. The Harris CapRock point of contact with the authority to suspend immediately the proposed ESV terminal operations is:

Mike Horn
Harris CapRock Communications
1025 West NASA Blvd.
Melbourne, FL USA 32919
Phone: 321-724-3384
Mobile: 321-258-4414
Text: [3212584414@text.att.net](tel:3212584414)
E-mail: mhorn01@harris.com

The secondary point of contact for the proposed experimental operations is:

Harris CapRock Network Control Center
Managed Network Services 24x7 support
4400 S. Sam Houston Pkwy, E.
Houston, Texas 77046
Office: (832) 668-2775
Fax: (713) 987-2894
Email Address: hcc-hou-csc@harris.com

The following annexes contain additional technical information relating to the proposed experimental operations:

- Exhibit A: ST5000-2.4 Description and Technical Characteristics
 - Annex 1 – Antenna Performance Plots (demonstrating compliance with the off-axis EIRP spectral density mask, including co-pol and cross-pol);
 - Annex 2 – Link Budgets (various forward and return link budgets for the ST5000-2.4 terminal);
 - Annex 3 – Radiation Hazard Studies (establishing near-field and far-field region distances). Harris CapRock will follow standard industry procedures to mitigate potential radiation hazards to personnel in controlled environments. (The terminals do not transmit in uncontrolled areas at Harris CapRock test facilities); and
 - Annex 4 – C-band Coordination Report, Port Canaveral, Florida.
- Exhibit B: v240M Description and Technical Characteristics
 - Annex 1 – Antenna Performance Plots (demonstrating compliance with the off-axis EIRP spectral density mask, including co-pol and cross-pol);
 - Annex 2 – Declaration of Conformity;
 - Annex 3 – Radiation Hazard Study for C-band operations¹¹ (Harris CapRock will follow standard industry procedures to mitigate potential radiation hazards to personnel in controlled environments. (The terminals do not transmit in uncontrolled areas at Harris CapRock test facilities); and
 - Annex 4 – C-band Coordination Report, Miami, Florida.

Conclusion. The requested STA will allow Harris CapRock to continue development of its new ST5000-2.4 terminal to communicate with C- and Ku-band satellites, and will not result in harmful interference to or require protection from other authorized spectrum users. Therefore, the proposed operations are consistent with Commission’s rules and policies and with the public interest. Harris CapRock respectfully requests that the experimental STA be granted for 180 days or such other period as may be appropriate commencing on August 1, 2015.

¹¹ Harris CapRock certifies that its operations at Ku-band are similar to Commission-licensed antennas of the same size and that it will employ established mitigation techniques to ensure that the RF levels remain well within the parameters established in the Commission’s Rules.